

REMARKS

Claims 1-19 are pending in this application. Claims 8-10 have been allowed, claim 11 has been objected to, and claims 1-7 and 12-19 have been rejected. The specification, Abstract and claims 1, 8, 10, 11, 13, 15-17 and 19 have been amended, and a replacement drawing sheet is submitted herewith. Claims 1, 15, 18 and 19 are independent.

The Examiner is thanked for the indicated allowability of claims 8-11, and for stating those claims would be allowed if rewritten in independent form. It is respectfully submitted that such rewriting is not necessary since, as explained below, claim 1, from which claims 8-11 depend, itself is allowable.

The Objection to the Drawings

The drawings were objected to under 37 C.F.R. § 1.84(p)(4) on grounds the reference character "133" has been used to designate both printing paper T (Fig. 4) and an antenna (Fig. 6A).

The Examiner is thanked for calling attention to this point. Applicants have responded to this objection by revising Fig. 4 to change "133" to --T--. A suitable replacement drawing sheet containing revised Fig. 4 is submitted herewith.

Accordingly, favorable reconsideration and withdrawal of this objection are respectfully requested.

The Objection to the Abstract

The Abstract of the Disclosure was objected to as being longer than 150 words, as specified in M.P.E.P. § 608.01(b).

The Abstract has been revised and now is not more than 150 words in length.

Favorable reconsideration and withdrawal of this objection are respectfully requested.

**The Objections
to the Claims**

Claims 11, 13 and 17 were objected to on grounds certain language used therein was unclear.

Claim 11 was objected to on grounds it was not clear whether vibration position or vibration versus time is being measured.

Claim 11 has been revised to clarify that the claim is directed to time-based events.

Claim 13 was objected to on grounds the term "outside" was not adequately defined.

Claim 13 has been revised to clarify that the term "outside" refers to a printing device (printer).

Claim 17 was objected to on grounds the language "notifies the non-correspondency" is not idiomatic English and was unclear.

Claim 17 has been revised to clarify this point.

It is respectfully submitted that these claim objections have been overcome.

Favorable reconsideration and withdrawal of these objections are respectfully requested.

**The Rejections Under
35 U.S.C. § 102**

Claims 1-7 and 12-19 have been rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,685,296 to Mochizuki et al. Applicants respectfully traverse this rejection, and submit the following arguments in support thereof.

Claim 1 involves a cartridge having a chamber to hold recording material used for printing. The cartridge is mountable on a printing apparatus. The cartridge includes a sensor that detects a state of the recording material held in the chamber, a condition reception module that receives an externally specified detection condition of the sensor, a detection module that performs detection under the specified detection condition, and an output module that outputs a result of the detection.

Thus, one feature of this invention involves carrying out detection when receiving an condition externally specified, say, by a printer.

Mochizuki's apparatus merely transmits data to and from an external object, but in no way does Mochizuki suggest that the data sent to the cartridge is an externally specified detection condition. Although the Office Action suggests that Fig. 10, element 30, of Mochizuki teaches an externally-specified detection condition (see, for example, the discussion of claims 1, 15, 18 and 19 at pages 4, 6, 8 and 9 of the Office Action), that is not correct.

As explained at col. 18, lines 21-35 and 45-57, Mochizuki merely teaches that

The receiving means 29 receives an input signal 30 from the outside A or B. The discriminating means 26 causes the information acquiring means 25 to acquire the information on the inside of the tank in response to the input signal from the receiving means 29, compares the acquired information on the inside of the tank and information stored in the information storing means 27, and determines if the acquired information on the inside of the tank meets predetermined conditions....

* * * *

In this state, the signal 30 for inquiring about the information on the inside of the ink tank is sent from the outside A or B to the element 21. This input signal 30 is a signal for inquiring the element, for example, if ink is still left in the ink tank and is received by the receiving means 29 (step S21 of FIG. 11). Then, the discriminating means 26 causes the information acquiring means 25 to acquire information on the inside of the ink tank such as an ink residual amount, a type of ink, temperature and pH (step S22 of FIG. 11) and reads conditions for comparing with the acquired information on the inside of the tank from the

information storing means 27 (step S23 of FIG. 11) to determine if the acquired information on the inside of the tank meets set conditions (step S24 of FIG. 11).

Signal 30 is only described as being a signal for inquiring about the information on the inside of the ink tank. There is no teaching or suggestion that signal 30 specifies the condition under which a sensor will detect information regarding the stored recording material.

That is, Mochizuki does not disclose or even suggest specifying a detection condition under which a sensor detects a state of a recording material held in a cartridge.

So the assertion in the Office Action that Mochizuki teaches a condition reception module that receives an externally specified detection condition of the sensor, a detection module that performs detection under the specified detection condition, is not well-taken. Consequently, claim 1 patentably distinguishes over Mochizuki.

Claim 15 is directed to a printing apparatus with a cartridge mounted thereon. The cartridge has a chamber to hold recording material for printing, and the cartridge includes a sensor that detects a state of the recording material in the chamber, a condition reception module that receives an externally specified detection condition of the sensor, a detection module that carries out detection under the specified detection condition, and an output module that outputs a result of the detection. The printing apparatus also includes a condition specification module that specifies the detection condition, an input module that receives the result of the detection output from the output module of the cartridge, and a verification module that verifies the result of the detection.

Here it should be noted that claim 15 describes a condition reception module that receives an externally specified detection condition of the sensor, and that the printing apparatus has a condition specification module that specifies the detection condition. As just explained in connection with claim 1, Mochizuki's signal 30 is just a signal for inquiring about

the information on the inside of the ink tank. There is no teaching or suggestion that signal 30 specifies the condition under which a sensor will detect information regarding the stored recording material.

As noted, Mochizuki does not disclose or even suggest specifying a detection condition under which a sensor detects a state of a recording material held in a cartridge.

Applicants' invention, as described in claim 18, involves a method of transmitting information to and from a cartridge, which has a chamber to hold a recording material for printing therein, and the information transmission method involves the steps of externally specifying a detection condition of a sensor, which is mounted on the cartridge and is used to detect a state of the recording material held in the chamber, from outside of the cartridge, and making a result of detection, which is carried out in the cartridge by the sensor under the specified detection condition, output from the cartridge to the outside that has given the external specification.

Thus, it should be appreciated that claim 18 provides for externally specifying a detection condition of a sensor as well as using a result of detection, which is carried out the sensor under the specified detection condition.

Again, Mochizuki does not disclose or even suggest specifying a detection condition under which a sensor detects a state of a recording material held in a cartridge.

Claim 19 describes a method of transmitting information to and from a cartridge, which has a chamber to hold a recording material used for printing, and the information transmission method involves externally specifying a detection condition of a sensor, which is mounted on the cartridge and is used to detect a state of the recording material held in the chamber, from outside of the cartridge, making data corresponding to the specified

detection condition, together with a result of detection carried out in the cartridge by the sensor under the specified detection condition, output from the cartridge to the outside of the cartridge; and verifying a correspondency of the output data to the specified detection condition, so as to determine the validity of the detection result.

Again, it will be noted that claim 19 provides for externally specifying a detection condition of a sensor.

This distinguishes over Mochizuki, which does not disclose or even suggest specifying a detection condition under which a sensor detects a state of a recording material held in a cartridge.

The remaining rejected claims, claims 2-7, 12-14, 16 and 17, all ultimately depend from and so incorporate by reference all the features of claims 1, 15, 18 or 19, including those features which have now been shown to avoid Mochizuki. Accordingly, these claims are patentable over Mochizuki at least for the same reasons as their respective base claims.

Lastly, it should be understood that there may be additional differences between the claimed invention and the cited art beyond those mentioned above. Also, the foregoing discussion should not be construed to limit the scope of protection afforded by the claims.

Favorable reconsideration and withdrawal of this rejection are respectfully requested.

**The Rejections Under
35 U.S.C. § 103**

Claim 4 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Mochizuki in view of U.S. Patent No. 6,016,519 to Chida et al. Applicants respectfully traverse this rejection, and submit the following arguments in support thereof.

Claim 4 depends from, and so incorporates by reference all the features of claim 1, including those features just shown to patentably distinguish over Mochizuki.

Chida is cited only as teaching it is known to use the same type of level detection to measure the level of toner and liquid ink. Regardless of whether that is true, Chida neither discloses or suggests specifying a detection condition under which a sensor detects a state of a recording material held in a cartridge, as in claim 4. So Chida suffers from the same deficiencies as Mochizuki.

Claim 4 therefore patentably distinguishes over the combination of Mochizuki and Chida for the same reasons as already have been given with regard to claim 1, which reasons are incorporated by reference herein.

For all the foregoing reasons, favorable reconsideration and withdrawal of this rejection are respectfully requested.

Claim 14 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Mochizuki in view of U.S. Patent Application Publn. No. 2003/0128245 to Walker and U.S. Patent No. 5,673,053 to Marthinsson. Applicants respectfully traverse this rejection, and submit the following arguments in support thereof.

Claim 14 ultimately depends from, and so incorporates by reference all the features of claim 1, including the features shown to patentably distinguish over Mochizuki.

Walker is cited only as teaching a cartridge having an antenna used to transmit radio communication between the cartridge and a controller. Regardless of whether that is true, Walker neither discloses or suggests specifying a detection condition under which a sensor detects a state of a recording material held in a cartridge, as in claim 14. So Walker suffers from the same deficiencies as Mochizuki.

Marthinsson is cited as disclosing the specific reasons for using a loop antenna.

Regardless of whether that is true, Marthinsson neither discloses or suggests specifying a detection condition under which a sensor detects a state of a recording material held in a cartridge, as in claim 4. So Marthinsson suffers from the same deficiencies as Mochizuki.

Claim 14 therefore patentably distinguishes over the combination of Mochizuki, Walker and Marthinsson for the same reasons as already have been given with regard to claim 1, which reasons are incorporated by reference herein.

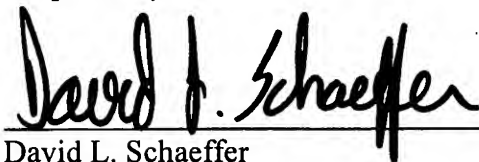
CONCLUSION

It is respectfully submitted that all objections and rejections are overcome. Favorable consideration and prompt allowance of this application are respectfully requested.

Other than the extension fee authorized in the accompanying Petition for Extension of Time, no fees are believed to be due. Nevertheless, should the Commissioner deem any fee(s) to be due, the Commissioner is authorized to charge such fees to Deposit Account No. 19-4709.

In the event that there are any questions, or should additional information be required, please contact Applicants' attorney at the number listed below.

Respectfully submitted,

A handwritten signature in black ink, reading "David L. Schaeffer", is written over a horizontal line.

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